STATEMENT OF JOSEPH ALSTON, SUPERINTENDENT OF GRAND CANYON NATIONAL PARK, NATIONAL PARK SERVICE, BEFORE THE HOUSE RESOURCES SUBCOMMITTEE ON NATIONAL PARKS, RECREATION AND PUBLIC LANDS OF THE HOUSE COMMITTEE ON RESOURCES, ON THE USE OF HYDROGEN FUEL CELL TECHNOLOGY IN THE NATIONAL PARK SYSTEM

May 15, 2004

Mr. Chairman, thank you for the opportunity to appear before your subcommittee at this oversight field hearing to discuss the National Park Service's (NPS) use of hydrogen fuel cell technology.

In 1999, the Department of the Interior and the Department of Energy (DOE) signed a memorandum of understanding to establish the "Green Energy Parks Program: Making the National Parks a Showcase for a Sustainable Energy Future." This joint venture has fostered hundreds of projects promoting energy and water conservation, as well as the use of renewable energy sources and vehicles that run on alternative fuels. The NPS is now moving to another level, acquiring alternative energy technologies to power our parks. As the production of electrical power via the use of fuel cells has become more viable, the NPS has developed a greater interest in this technology because the fuel used to produce the power is hydrogen, rather than a fossil-based fuel.

The Service's first pure hydrogen fuel cell was installed in 1999 at Golden Gate National Recreation Area's Kirby Cove Campground. The small 0.5-kilowatt system was fairly reliable, and when coupled with a solar photovoltaic system, provided clean electricity to a trailer site reserved for a NPS volunteer campground host. When the current park

concessioner took over the campground, the services of a campground host were no longer needed and the position was eliminated. The concessioner determined that the hydrogen fuel cell system was unnecessary and it was removed.

A larger project is underway at Kenai Fjords National Park in Alaska, where the park has installed a 5-kilowatt fuel cell in the Exit Glacier area that will be utilized during the summer months, when the area is open to park visitors. Expected to be in full operation at the end of May 2004, this fuel cell will operate the entire Exit Glacier visitor area, including the Nature Center, and the park's heating and water systems. The ultimate goal is to have this fuel cell be the primary source of power, with a diesel generator used for backup. DOE's Arctic Energy Technology Development Laboratory in Fairbanks provided partial funding for the fuel cell, and the additional funding was provided through grants from the Propane Education and Research Council, the Alaska Energy Authority, the Denali Commission, and DOE.

The NPS sees hydrogen as possibly a more viable source of energy in the future. Denali National Park and Preserve, for instance, is working towards using hydrogen fuel for vehicles as well as for facility fuel cells, and has supported an effort to get hydrogen vehicles and infrastructure into the Healy, Alaska and Denali National Park areas. Toward that end, the NPS is currently supporting an application for a DOE grant by a major vehicle manufacturer. The grant would result in the demonstration of hydrogen-powered light trucks and state-of-the-art hydrogen-fueling stations. Denali National Park

and Preserve would benefit from the grant by receiving buses that run on hydrogen fuel and a fueling station to service vehicles operated by the park concessionaire.

Denali is also looking for ways to fund and incorporate a fuel cell at the Eielson Visitor Center - a focal point for the visitor to see Mt. McKinley. Sixty miles off of the electric grid, reached only by bus and visited by some 300,000 people per year, the visitor center provides an outstanding opportunity for combining the new technology for both travel and facility power. Support by the neighboring communities with common infrastructure would enhance the use of hydrogen in those communities. The hydrogen would be made locally by utilizing power generated next to the park to electrolyze water with off-peak electricity, putting hydrogen on economic par with other energy sources.

In the same vein, the Kennecott Historic District of Alaska in Wrangell - St. Elias National Park and Preserve is looking for ways to ultimately eliminate the transport of hydrocarbon fuels into the Kennecott area by utilizing excess hydro power to produce hydrogen that would run vehicles and provide heat. The Kennecott area has no road access, so all fuel is either flown in or trucked over a frozen river during a two-month period and stored for the rest of the year. Refurbishing an existing hydro facility could provide the means of producing the hydrogen that would enable the area to be energy self-sufficient through a clean source.

A 10-kilowatt fuel cell will be in place in late summer 2004 at the Cuyahoga Valley

Environmental Education Center located within Cuyahoga Valley National Park through a partnership that includes: Electric Power Research Institute, Cuyahoga Valley National Park Association, Case Western Reserve University, the U.S. Department of Energy, the U.S. Department of Defense, and FirstEnergy Corporation. This project will be a component of the Education Center's agenda as well as a fully operational energy source.

Recently Director Mainella signed a memorandum of agreement with the U.S. Army Corps of Engineers Research and Development Center, Construction Engineering Research Laboratory (ERDC-CERL) to help increase our use of fuel cells. To kick off this partnership, a 5-kilowatt fuel cell has been installed and is operating in Yosemite National Park, with a second identical fuel cell scheduled for installation in early fall 2004. A third 5-kilowatt fuel cell is scheduled to be installed in Yellowstone National Park in the late summer 2004. This particular fuel cell will be unique because the hydrogen will be derived from U.S. produced canola oil.

In addition, by the end of 2004 we will be using fuel cell technology in an eastern urban area. The National Capital Region is working with the Department of Energy and the General Motors Corporation to place a fuel cell in a park within the Washington D.C. area.

Although we are pleased with the progress we are making, not all projects are working out according to plan. A 4.5-kilowatt hydrogen fuel cell was installed at the west entrance of Yellowstone National Park in 2002. The local utility company, Fall River

Cooperative, selected the west entrance to the park for a fuel cell demonstration project. A grant, from the Bonneville Power Administration to Fall River Co-op paid for the fuel cell, while fuel costs were funded through a grant from the Propane Education and Research Council. This fuel cell powered the west entrance offices and entrance kiosks, and heated the offices as well. However, the system was removed from the park when the utility company determined it was too difficult to maintain.

Fuel cells technologies are currently not cost-effective. The aforementioned projects are currently being funded through other agencies and donations from third parties; very little NPS funding has been used. We would like to make fuel cells an ongoing part of the way we do business, the way we power our parks, and the way we manage the cultural and natural resources that make up the National Park System, assuming fuel cells can be made cost effective and, therefore, economically sustainable.

In his 2003 State of the Union address, President Bush announced a $1.2 billion hydrogen fuel initiative to reverse America's growing dependence on foreign oil by developing the technology for commercially viable hydrogen-powered fuel cells to power cars, trucks, homes and businesses. The National Park Service would like to be a part of this initiative. Through the NPS's Green Energy Parks Program we believe we can educate the public on this initiative. As hydrogen fuel cell projects are installed in various units of the system, the NPS in cooperation with DOE, can reach millions of national and international visitors and teach them how and why a hydrogen future can work. There

are numerous opportunities for the National Park Service to be leaders in applying this technology as stationary fuel cells and in power for vehicles.

Mr. Chairman, this concludes my prepared remarks. I would be pleased to answer any questions you or members of the committee may have.